wards named by Prof. Baird. One of these was mounted and put on exhibition in the Boston Society (it is now M. C. Z. no. 72580) and probably Baird did not have it. The other, still a skin, bears a label on which "type" is marked, in, I think, Baird's handwriting.

Cœreba caboti (Baird). *Certhiola caboti* Baird, Am. Nat., Vol. VII, p. 612, Oct. 1873, Cozumel Isl. 1842. TYPE now, M. C. Z. no. 72525.

The only other type — so far as I have been able to ascertain — in the Cabot collection was,

Tragopan caboti (Gould). *Ceriornis caboti* Gould, P. Z. S. 1857, p. 161. Figured in Birds of Asia, VII, pl. 48. This specimen, is now M. C. Z. no. 73213. It was mounted and had been somewhat battered, during its many changes of abode, but has been remade into a very good skin by Mr. George Nelson.

THE ATLANTIC RANGE OF LEACH'S PETREL (*OCEANODROMA LEUCORHOA* (VIEILLOT)).

BY ROBERT CUSHMAN MURPHY.

ACCORDING to the A. O. U. Check-List, 1910, the western Atlantic range of Leach's Petrel extends from breeding grounds in southern Greenland south casually to Virginia. In the eastern Atlantic the species is known, either as a regular visitor or as a wanderer, at the Azores, Madeira (Nov.), Canary Islands (Nov.), Cape Verdes (Jan.), and the coasts of Sierra Leone and Liberia (Bannerman, Ibis, Vol. II, 1914, pp. 450, 451). Specimens have also been taken in January and March between the Equator and 5° N. latitude, in the longitude of the Cape Verdes, or in approximately the geographical center of the tropical Atlantic Ocean (Salvin, Cat. B. Brit. Mus., Vol. XXV, 1896, p. 350).

During the cruise of the whaler *Daisy*, 1912–1913, I observed and collected *O. leucorhoa* over an area which extends farther to the west and south in the equatorial Atlantic than the previously known range of the species.

RECORDS OF COLLECTION.

September 9, 1912, 28° 36′ N., 31° 45′ W. (Latitude of the Canary Islands; west of the meridian of the westernmost Azores.) The calmest day I have ever seen, and excessively hot. The glare of the mirroring sea was blinding. The water was dotted with the tiny, translucent sails of sallee-men (*Velella);* pelagic insects (*Halobates*), so rarely visible, left long wakes in the flat, impressionable sea; and large areas of the substance which whalemen call "tallow drops" drifted slowly past the brig. Early in the forenoon small dark petrels were seen flying about erratically in the distance, and, lowering the dory, I collected the first example of *Oceanodroma leucorhoa.* I remained in the boat about an hour, "chumming" for the birds with grease, but none other came near.

September 27, 10° 46′ N., 24° 38′ W. (South of Fogo, Cape Verde Islands.) Calm, with a heavy swell; overcast; northerly breeze toward evening. Among a flock of *Oceanites oceanicus* which fed about us on this day were eight Leach's Petrels. The latter could be readily distinguished by their slightly larger size, longer wings, and notably different style of flight. *Oceanodroma* flies with rapid, "leaping" strokes, quite unlike the alternations of gliding and synchronous flutters which characterize the flight of *Oceanites.* An observer who has once had the good fortune of watching the two species together can thereafter distinguish them almost as far away as the birds can be seen.

I lowered the dory and shot three of the Leach's Petrels.

On September 30, I saw another *Oceanodroma,* but could not lower.

October 3, 6° 46′ N., 24° 35′ W. At nine o'clock in the evening the crew was engaged in boiling sperm whale blubber, the cresset over the try-works casting a red glare against the limp sails, when a dazzled petrel tumbled onto the deck. It fluttered about, bewildered, but managed to escape. Two others were caught during the night, however, and both proved to be *O. leucorhoa.* One of them I banded and freed.

April 18, 1913, 3° 40′ S., 33° 35′ W. (Between Rocas Reef and

Fernando Noronha). Fair, with light easterly winds. We passed close enough to Rocas Reef so that the signal and buildings could be seen from the masthead. One *Oceanodroma*, among the *Oceanites*, flew about our stern for a few minutes.

April 19, 3° 15′ S., 33° 40′ W. Flat calm all day and well into the night. I lowered the dory and collected a dozen petrels, three of which were *Oceanodroma leucorhoa*. One of these had lost a leg above the tarso-metatarsal joint, but it seemed to obtain its food as well as the others. The "springy" flight again struck me as quite distinctive. Unlike Wilson's Petrel the Leach's Petrels settled frequently into the water, holding the tips of their wings high while they swam.

April 23, 1° 34′ S., 34° 18′ W. Calm; showers. One *Oceanodroma* seen.

May 4, 13° 16′ N., 51° 34′ W. (Due east of Barbados, W. I.) Moderate trade winds. An *Oceanodroma* flew about us for a while during the morning. I was enabled to watch it very closely, and there can be no doubt whatever regarding the identification. The record is particularly interesting, partly because the locality is almost within the Lesser Antillean region, and also because the date is about the beginning of the normal breeding season for this species in the temperate North Atlantic.

Notes on the Skins.

All the specimens collected in the tropical Atlantic are indistinguishable from birds taken at Grand Manan and elsewhere near the North American breeding grounds. It is perhaps needless to say that I have avoided a possible confusion with *O. castro*.

The sequence of the plumages is interesting. The specimen taken on September 9, an adult female, is moulting its worn and much faded feathers, a few new, gray scapularies and half-grown rectrices contrasting strongly with the dingy brown of the adjacent plumage. Two September 27 specimens have a completely new garb with the exception of the three outermost primaries which are frayed. The birds collected on April 19 have new quills, and contour plumage which is nowhere greatly worn.

CONCLUSIONS.

Oceanodroma leucorhoa occurs regularly in the tropical Atlantic from September to April or May. It has been taken on and south of the Equator in March and April. The range of the species should be restated in part as follows: — Breeds from southern Greenland and the Faeroes south to Maine and the Hebrides; south in migration to the Equator and the vicinity of Cape San Roque, Brazil.

SOME SUGGESTIONS FOR BETTER METHODS OF RECORDING AND STUDYING BIRD SONGS.

BY ARETAS A. SAUNDERS.

UP to the present time our methods of recording bird songs have been lacking in uniformity. We realize the fact that bird songs are a great help in field identification of species, when once learned. We admit that a knowledge of these songs is as much to be desired as a knowledge of plumage or migration, that it should occupy as prominent a place in the science of ornithology. But if we search through various writings for records of the song of a given species, we find a heterogeneous and uncertain mixture of data that do not give us any satisfactory impression of the song. Various methods have been used to describe and record bird songs, but so far, only one method, that of musical notation, has been possessed of any scientific accuracy.

Musical notation, as a method of recording bird songs, has been subject to a great deal of adverse criticism. It has been made primarily for the recording and rendering of human music and birds do not usually sing according to such standards. The musical scale gives no place for the recording of notes that are slightly sharp or flat. Its standards of time do not allow the record of a song that does not follow the rhythmic beat of its measures. Do